speaker signal. The voice signal of the admitted prior art is not sampled on different channels, and is not output in the form of a "multi-channel sampled signal" containing periodically alternative voice signals, thereby permitting the ratio of specific voice signal in a synthesized voice signal to be easily adjusted by changing the numbers of channels occupied by the specific voice signal, and yet avoiding the need for an adder as required by the prior art because the multi-channel sampled signal can be directly modified and output.

2.   The Kaneko patent also does not distribute voice signals over multiple channels and then sample and directly apply the multi-channel voice signals to a speaker so as to enable voice adjustment by simply changing the number of channels, as claimed, while eliminating the need for summing prior to output. Although it discloses time division multiplexing, the time division multiplexing performed by the system of Kaneko does not involve sampling of voice signals distributed over multiple channels, but rather for the purpose of combining different types of signals during processing under control of a mode (as opposed to channel) selector, the different modes involving outputs from entirely different sources and not a voice signal distributed over different channels. Therefore, Kaneko could not possibly have suggested modification of the admitted prior art system by distributing a voice signal over multiple channels and using the sampled voice signals to form the speaker signal, as claimed, without the need for summing.

3.   The Elam patent discloses a system involving manual channel selection, and also could not have suggested modification of the admitted prior art to sample voice signals over multiple channels in order to enable voice synthesis by simply changing the number of channels while eliminating the need to sum the signals before output to a speaker.

2

While the Kaneko patent discloses time division multiplexing of voice and music signals, it does not even remotely suggest use of a channel selector to achieve the time division multiplexing, in order to distribute input voice signals over multiple channels. Instead, control of the time division multiplexing of Kaneko is achieved in an entirely non-analogous manner. Whereas the claimed channel selecting signal controls a channel selector to successively sample a plurality of voice signals with a sampling rate that permits each channel to be sampled once per cycle to generate the multi-channel voice signal, the signal SL that ultimately controls multiplexing in the system of Kaneko merely indicates the state of a manual mode selector switch. In particular, the function of the signal SL input to the selector 26 is to indicate whether a mode selector switch has been manually set to either of two modes (automatic piano (AP) and manual speech (MD)). When the switch 12 is set to one of the two modes, output signal SL equals "1," and selector switch 26 selects input A. When switch 12 is set to one of the two other modes (manual piano (MP) and automatic speech (AD)), output signal SL equals "0," and the selector switch is set to input B. The different inputs A and B are connected to receive pitch data MPC and KPC from the keyboard circuit 20 (which outputs tones based on keys pressed by the user) and a performance data generator 22 (which outputs pre-stored tunes in response to keys pressed).

Selection signal SL of Kaneko, which effectively selects the signals that are multiplexed in the system of Kaneko, therefore has nothing to do with the claimed selection signal for sampling of a plurality of voice signals on separate channels, nor does Kaneko otherwise teach sampling of a plurality of voice signals on separate channels, as claimed. In fact, as pointed out in the previous response, the Kaneko patent does not disclose any sort of voice data generator. Conversely, the claimed invention does not have four operation modes as in Kaneko, but to the contrary only has one operation mode, namely playback of multichannel voice signals.

Since the operation mode of the apparatus disclosed by Kaneko et al. changes non-periodically, the signal SL for controlling the operation of the selector 26 in accordance with the changes of the operation modes cannot be a periodical signal. In contrast, claim 1 specifically

recites a "periodical channel selecting signal" for time-divisionally sampling the inputting signals. None of the references of record, including the admitted prior art, even remotely suggests a periodic selecting signal for the time division multiplexing, much less a periodic channel selecting signal, as claimed. The format of the control signal disclosed by Kaneko et al. and that of the channel selecting signal disclosed by the present invention are not analogous.

In effect, the signals to be time division multiplexed by the system of Kaneko are selected based on the mode selection, and not for the purpose of adjusting a multiple channel voice signal. Under different operation modes of Kaneko et al., the selector 26 receives the pitch data MPC generated from the performance data generator 22 as an input A, or the keyboard pitch data KPC generated from the keyboard circuit 20 as an input B, in accordance with the control signal SL output from the mode selector 10. Then, only the pitch data MPC or the keyboard pitch data KPC is selected. (See col. 5, lines 6-13). In contrast, the channel selector of the present invention receives **all** signals S1-S4 from the voice signal data generators, rather than receiving only certain specific signals as taught by Kaneko et al. Moreover, once the signals are received, each step performed by the time-division processor 24 is **different** from other steps for each time-division operation, whereas the channel selector disclosed in the present invention simply time-divisionally samples the input voice signals so that each sampling step performed by the channel selector is the **same**.

According to Kaneko et al., the time-division processor 24 performs time-division sending/receiving operations in conjunction with a performance data generator 22, a time division output circuit 32, or a frequency division control data memory 30, respectively to complete the different types of operations (i.e., A1-A3, B1-B2, C1-C3). Taking the data read operation as an example, the data read operation is accomplished by the time-division processor 24 through cooperative time-divisional sending/receiving signals to/form the performance data generator 22 (see col.4, lines 13-49). In contrast, the claimed channel selector simply performs a time-division sampling operation. The channel selector only receives voice data signals from voice data generators. Therefore, the time-division operation performed by the time-division

4

processor 24 taught by Kaneko et al. is different form the time-division sampling performed by the channel selector disclosed in the present invention.

In summary, neither the admitted prior art, the Kaneko patent, or the Elam patent discloses or suggests sampling a voice signal on different channels, as claimed, and outputting the sampled voice signals in the form of a "**multi-channel** sampled signal" made up of **periodic** alternative voice signals that are directly modified and output directly to a modulator to generate a speaker signal without being demodulated beforehand. As a result, the rejection under 35 USC §103(a) is believed to be improper, and withdrawal of the rejection is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

By: BENJAMIN E. URCIA
Registration No. 33,805

Date: February 6, 2003

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, Virginia 22314

Telephone: (703) 683-0500

SWB:S:\Producer\ben\Pending Q_ZYYY\AN041451Y.a02.a.pd